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HYBRID GRAPES.

BY CHARLES H. HIGBEE.

THERE are three species of the grape indigenous to New England, viz.: — *Vitis Labrusca* (Northern Fox Grape); *Vitis æstivalis* (Summer grape); and *Vitis cordifolia* (Winter Grape); as classified by Gray. Probably they have not changed much, if any, in their peculiar characteristics for centuries, or since that unknown distant time when species were first so constituted. Although these species have innumerable varieties, that have slight differences of fruit, foliage or habit, yet the great points of semblance are always preserved, and any one familiar with these points, can easily tell to which species any specimen belongs. By the laws of nature they are maintained, and any change from her standard she looks upon with aversion. The whole life and energy of a plant is devoted to reproducing its kind, and it gives to its offspring the predisposition for its *own* qualities.

Until lately the wild kinds have been somewhat cultivated, and almost every garden, twenty years since, contained one or more. The kind usually grown was the Labrusca, and is familiarly known by every one. It has a peculiar flavor, that is pleasant in the early stages of its ripening; but at maturity, is strong and disagreeable to most persons. This strong flavor is called by the fruit growers "foxy," and by others "grapey." The Labrusca bears the most palatable fruit of the three named species.

At the present time, we rarely find the native kinds in cultivation, but they can be found along our country road-sides, pastures and swamps. The varieties of the *V. vinifera* (European Grape), have been frequently tried in various places in this country, have not flourished and likewise have been discarded. But a race of good grapes has appeared, one by one, beginning with the Isabella, which was first circulated in 1818.

With all the plants and animals that man has domesticated, he has developed those qualities and parts most necessary to his wants and desires, and he can do this by *selection*, and giving to the subject all the conditions that make it flourish. When the wild grapes were domesticated, a change began, and having induced a vine to take one step forward in its fruit, according to the theory of Darwin, by sowing the seed, selecting the most improved seedling and continuing the process, at last, we would have a perfect grape, excellent in every particular. This process is very slow. The experiments of Mr. George Haskell, of Ipswich, are very interesting on this point, and from them we learn how very slow is the process of improving by selection. He has raised thousands of seedlings of the wild grape in an open field, where they could not have any influence from other kinds, and raised several generations without any perceptible improvement.

It is very reasonable to suppose that the fine grapes of the Old World, and the Muscats, Black Hamburgs of our graperies, have attained to their present standard by this method, and it must have taken ages. No doubt from the earliest time they have constantly progressed. A quicker way of improving our native kinds, than by "successive selection," and one that I think has been the means of producing most of the various sorts now grown, is, by hybridizing, and in this way at once adding the accumulated excellence of the foreign kinds to our own.

To Edward S. Rogers of Salem, belongs the credit of first artificially hybridizing the grape. The idea first suggested itself to him in 1848, but was not acted upon until the spring of 1851. He crossed several varieties of pears, and hybridized the *V. Labrusca* with *V. Vinifera.**

The vine taken was that of the kind called Mammoth Globe (a variety of the *V. Labrusca*), which he bought of a person from Lowell, in 1846. It stood at the end of his garden, bordering on Federal street, and may be seen now climbing over an old pear tree. The pollen was taken from some Black Hamburg and Sweetwater vines that were growing in the same garden. These were obtained of Samuel G. Perkins of Brookline, in 1834, and were grown for several years in the open air, and had borne several fine crops. The mildew began to trouble them, and in 1844 Mr. Rogers built the grape-house over them for their protection.

On account of the smallness of the grape flowers and the peculiarity of the corolla in opening at the base and remaining united at the top, forming a cap, which often fertilizes as it expands, the grape was supposed beyond the reach of any interference in regard to its reproduction. These did not prove to be obstacles to Mr. Rogers. His account of his work is found in the *Horticulturist*, Vol. 8, Nos. 2 and 3, pp. 86 and 119. I will not repeat it here.

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* I hereby make a distinction between a *cross* and a *hybrid.* The first is the offspring of two varieties of the *same* species, while the latter is from the union of two separate species.

At first he was laughed at for the attempt, and our most learned horticulturists and botanists declared it to be an absurdity. But by the time the young hybrids began to fruit, he had several believers. In 1856, the vines that had grown in the original place, fruited; the rest the following year. This year he recrossed the *hybrids* with the *V. Vinifera*, bringing vines bearing fruit, nearly identical with the foreign kinds. The fruit of No. 4 of the first lot crossed with the Muscat, has the peculiar flavor of the Muscat.

It seems very remarkable that so large a number of fine grapes have appeared within the last fifteen years, and particularly within the last twenty. And as shown by the experiments of Mr. Haskell, and by the laws of reproduction, as far as they are known, it seems that the cultivated kinds are not simply improved seedlings, but are natural *hybrids*. Then, too, we do not find the gradually ascending scale of excellence that might be expected, if they came by progression. Between the wild Labrusca and the Isabella, Catawba, &c., there is a very wide difference. The seedlings of these kinds all tend back towards the original, and are much inferior to their parents, who have been elated by a favorable alliance. Again, the hybrids of Mr. Rogers' raising, resemble the "improved seedlings." No. 15 is frequently compared with the Catawba. Now all the attempts to cross the "improved seedlings" has resulted in producing grapes, so near the foreign kinds, as to be nearly or entirely worthless for open air culture in our climate, and closely resembling them in every particular. This was the same with Mr. Rogers' second crosses, as he calls them.

The introduction and dissemination of the European grapes has brought together the two species, and the result is, that every year we hear of a new grape springing up in some old garden. There has always been an uncertainty as to the origin of the common varieties, and I can find nothing in their history that conflicts with the views herein given.

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REGULAR MEETING, MONDAY, FEBRUARY 7, 1870.

The President in the chair. Records of preceding meeting read.

The Secretary announced the following correspondence.

Academia delle Scienze, Bologna, May 15, 1869; C. M. Barton, Worcester, Jan. 19, 21; W. T. Brigham, Boston, Jan. 20, 24; A. C. Hamlin, Bangor, Me., Feb. 1, 2; Ferdinand D. Ilsley, Newark, N. J., Jan. 31; Linnæan Society, London, Sept. 25, 1869; N. H. Morrison, Baltimore, Md., Jan. 19; E. Steiger, New York, Jan. 10.

The Librarian reported the following additions to the Library.

By Donation.

ANDOVER THEOLOGICAL SEMINARY. Catalogue of the Officers and Students for 1869-70, 8vo pamph.

BUTLER, BENJ. F., M. C. Speech of Hon. H. L. Dawes in U. S. H. R., on Economy of Public Expenditures. Speeches of Hon. B. F. Butler in the U. S. H. R., on Public Expenditures of Grant's Administration.

CUTTS, MARY P. S. Life and Times of Hon. William Jarvis, of Weathersfield, Vt., 1 vol. 8vo, New York, 1869.

HARVARD UNIVERSITY. Medical Department. Eighty-seventh Medical Course, 8vo pamph., Boston, 1870.

LEE, JOHN C. Commercial Bulletin for January, 1870.

SUMNER, CHARLES, U. S. Sen. Speech of Hon. Charles Sumner in U. S. Sen., Jan. 12, 1870, 8vo pamph.

TRUAIR & SMITH, of Syracuse. Syracuse and Onondaga Directories for 1868, 1870, 2 vols. 8vo.

WATERS, J. LINTON, of Chicago. The Weekly Mississippi Valley Review and St. Louis Journal of Commerce, Jan., 1870, 4to pamph. Fifteenth Ann. Rep. of Board of Education, of Chicago, 8vo pamph., 1869. Illinois Central Directory for 1869, 1 vol. 8vo.

WOOD, C. A. & J. F. Directory of Essex County for 1870, 1 vol. 8vo, Boston, 1870.

WOODWARD, R., of Worcester. Worcester Directory for 1866, 1867, 1868, 3 vols. 8vo.

By Exchange.

AMERICAN ANTIQUARIAN SOCIETY. Proceedings at the Annual Meeting. Oct. 21 1869, 8vo pamph.

AMERICAN PHILOSOPHICAL SOCIETY, Philadelphia. Proceedings, Vol. xi, No, 82, 8vo pamph.

ARCHIV FUR ANTHROPOLOGIE. Zeitschrift fur Naturgeschichte und Urgeschichte des Menschen, 4to pamph., Braunschweig, 1869.

BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences Physiques et Naturelles, Nov. 15, 1869, 8vo pamph., Genève.

BOSTON PUBLIC LIBRARY. Seventeenth Annual Report of the Trustees, 1869, 8vo pamph.

BOSTON SOCIETY OF NATURAL HISTORY. Proceedings, Vol. xiii, sig. 12.

MORAVIAN HISTORICAL SOCIETY. Transactions 1857 - 1869, 3 pamphlets 8vo, Bethlehem.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Address of the Hon. M. P. Wilder, at the Annual Meeting, Jan. 5, 1870, 8vo pamph.

PUBLISHERS. American Literary Gazette. Book Buyer. Christian World. College Review. Cosmos. Eclectic. Essex Banner. Gloucester Telegraph. Haverhill Gazette. Historical Magazine. Lawrence American. L'Investigateur. Lynn Reporter. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seaman's Friend. Silliman's Journal.

VERMONT STATE HISTORICAL SOCIETY. Proceedings, 8vo pamph., Montpelier, 1868. Oration by W. W. Grout, Nov. 4, 1869, 8vo pamph., Rutland, 1869. Address before Vermont State Agr. Society at Burlington, Sept. 16, 1869, 8vo pamph.

Mr. W. P. UPHAM, in behalf of the committee previously appointed, reported the following resolutions, which were unanimously accepted.

Resolved, That in the recent and sudden death of Charles Davis, Esq., of Beverly, the Essex Institute recognizes the loss of one of its most efficient members. His earnest devotion to its interests, his constant attendance at its meetings, the important aid he has often rendered by obtaining new members, and in other ways, and finally the liberal bequest by which he has laid a new foundation for the promotion of its objects, will cause his memory to be held in grateful and affectionate regard by this society. His constant and never failing fidelity was a marked feature of his life, as a member and officer of this and other societies; and his thoroughly honest and ingenuous character and genial disposition made him an agreeable associate and companion.

Resolved, That Robert S. Rantoul, Esq., be requested to prepare a memoir of Mr. Davis, to be read at some future meeting of the Society, and published in its Collections.

Resolved, That these Resolutions be entered upon our Records, and that a copy be sent to the family of the deceased.

The PRESIDENT alluded briefly to the history of horticulture in Salem, and expressed the hope that some person, ere long, would undertake the investigation of this subject and present the results at a future meeting.

Pear trees of great age in several gardens indicate that our ancestors, at an early period, were not unmindful of fruit culture.

George Heusler, a native of Landau, in the Province of Alsace, Germany, may be considered as the first professional gardener in this vicinity. He came from Amsterdam to this country in 1780, bringing professional diplomas and recommendations. Soon after his arrival he commenced his horticultural pursuits in the employment of John Tracy of Newburyport, where he married. In 1790 he removed with his family to Salem, and continued the same avocation on the farm of E. Haskett Derby, in Danvers (now Peabody), and in many of the gardens of Salem, Danvers, and other towns of the county, until nearly the time of his decease, which occurred April 3, 1817, at the age of 66 years. He was highly esteemed as an intelligent, upright, kind hearted and religious man; and to him our people are indebted for the introduction of many valuable fruits, and for largely developing a taste for an occupation which has, from that time to the present, received much attention.

Ezekiel Hersey Derby was the third son of E. Haskett Derby, above mentioned, a name distinguished in the commercial annals of Salem as pioneers in the trade to the East Indies, which has contributed so largely to the wealth of this place, and opened a new field to the ever ready enterprise of its citizens. He was a graduate of Harvard, in 1791, and not having the family love of adventure on the ocean, marked out a new path for himself on land, in the pursuits of agriculture. Inheriting an ample fortune, he took possession of the family estate in South Salem, and about the year 1802, began to transform it, under his improving hand, into a delightful residence; the extensive garden and grounds, with the ponds, green-houses, borders of flowers, shrubbery, orchards and belts of forest trees, many of choice imported varieties, soon became one of the most agreeable features in our landscape, and will be pleasantly remembered long after the waves of an increasing population have destroyed every vestige. Here he passed the greater part of his active years in advancing his favorite studies and the objects of the Massachusetts Society for the Promotion of Agriculture, having been one of the founders and for many years a trustee. In our own County of Essex, his name holds a permanent and honorable place.

He died October 31, 1852, aged fourscore years less one day.*

The *Salem Gazette* of Friday, July 13, 1810, contains an interesting account of the opening of a flower of the Night Blooming Cereus (*Cereus grandifiora*) in the garden of E. H. Derby, on the Monday evening previous, and that several of the citizens were gratified with a sight of this rare, beautiful and magnificent flower, undoubtedly its first appearance in Salem. The next flowering of this plant which we

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*See obituary notice in *Salem Gazette*, Tuesday, Nov. 2, 1852.—Genealogy of Derby Family in Essex Institute Historical Collections, Vol. iii, page 287.

have on record, is in the garden of J. F. Allen, in July, 1838. This specimen is now in a good state of preservation in the Museum.

On Thursday evening, June 25, 1840, Francis Putnam exhibited three flowers at the rooms of the Essex County Natural History Society. Since that time, every year several have expanded in the houses of Messrs. F. Putnam, C. Hoffman, and perhaps others.

Robert Manning* commenced his Pomological Garden in North Salem, in 1823. At the time of his death, it was unrivalled in the variety of fruits then cultivated, containing nearly one thousand varieties of pears, besides of apples, peaches, plums, cherries, some hundreds more; no precise number having been obtained; probably, including all kinds of fruits, not far from two thousand varieties. His principal object in the formation of this garden was rather to collect together the several varieties in order to identification, to test their qualities and to correct the nomenclature which had been in confusion, than to grow fine specimens or to originate new varieties; these did not much occupy his attention, although several varieties, particularly of cherries, are his seedlings and bear his name. He died October 10, 1842, aged 58, in the midst of his labors and usefulness. He was an enthusiastic and most accurate and discriminating pomologist, and so very familiar with the names and habits of the trees and the qualities of fruits, that he could readily identify at sight even the most rare kinds. He was one of the original members of the Massachusetts Horticultural Society,† and a regular attendant, with liberal contributions almost always labelled, at its earlier exhibitions. He was a man of great simplicity of character and liberality of disposition, freely imparting to others information which cost him much study and research. His labors in the cause of pomological science by the introduction into general use the best of varieties of fruits, fairly entitle him to be ranked among the public benefactors.

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* *Robert Manning* was born at Salem, July 19, 1784; m. Dec. 20, 1824, Rebecca Dodge Burnham of Ipswich. His principal business in life, aside from his horticultural pursuits, was that of a stage agent; in this occupation several members of his family were largely interested. His sister Elizabeth was the mother of Nathaniel Hawthorne, who had such a brilliant and successful literary career; b. at Salem, July 4, 1804; gr. Bowdoin College, 1825; died at Plymouth, N. H., on a journey for his health, May 19, 1864. His father, Richard Manning, b. at Ipswich, May 29, 1755; m. Miriam Lord, May 30, 1776, and soon after removed to Salem; a blacksmith, stagekeeper and landholder; d. at Newbury while on a journey, April 19, 1813. His grandfather, John Manning, b, March 16, 1703, was the son of Thomas, b. in England, Feb. 11, 1664; admitted an inhabitant of Ipswich, Feb. 10, 1684–5; and d. May 14, 1737. Thomas Manning was the son of Richard Manning, who was baptized at St. Patrick's Parish, Dartmoor, England, in 1622; married Anstice Calley, and had seven children. The father died in England. The mother came over (a widow) with the children, who settled principally in Salem.

† See a series of articles on "Reminiscences of Massachusetts Horticultural Society," now being printed in *Tilton's Journal of Horticulture*, from the pen of John B. Russell, an original member.

His example seemed to inspire others and to awaken a new interest in this pursuit. The neighborhood soon became famous for its gardens, in which his may be considered as the centre, around which the others crystallized and took form.

The operations in the garden were not suspended in consequence of his death, but were continued many years afterwards; the mantle having seemed to fall naturally upon his eldest son, *Robert Manning*, who inherited the horticultural zeal and tastes of the father; and, having such a prestige, and such an accumulation of experience, was enabled, though a young man, to advance greatly horticultural knowledge and to take a high rank among the horticulturists of the country.

John C. Lee commenced operations in the spring of 1831; John M. Ives in 1836, on the estate now owned by George F. Brown; Charles F. Putnam and brothers in 1841; Pickering Dodge, Francis Peabody, James Upton and others in succession. From these gardens many valuable and important contributions to the horticultural exhibitions in years past were received. Besides the culture of fruit trees, Messrs. Eben and Francis Putnam were successful in the cultivation of the rose, and of this flower no less than five or six hundred varieties bloomed in the month of June, constituting one of the chief attractions of the city some twenty and twenty-five years since. At the same period, and for many years before and since, the garden of Joseph S. Cabot was conspicuous for the magnificent display of tulips, comprising some six or seven hundred varieties, and for a large collection of choice herbaceous plants which kept a succession of blooms during the season.

On the 28th of July, 1853, flowered in the green-house of J. Fiske Allen on Chestnut street, a plant of the Victoria Regia, the great water lily of the Amazon, the seed having been obtained of Caleb Cope of Philadelphia, and planted in the early part of the December previous. The following season, 1854, Mr. Allen enlarged his house and tank, and flowered several plants of this lily — the seed of some were obtained from England and planted in March previous, the others from the American plant. The climate in this house being so modified by the surroundings that it was admirably fitted for the growth of other tropical plants; and Mr. Allen arranged a collection of fine orchids, *amaryllis*, *calla*, *nelumbium* and other species of lilies which grew well and produced beautiful flowers, and thus adding greatly to the attraction of this structure, which was for several weeks thronged with many visitors to witness the first blooming of the Victoria in the New England States. Mr. Allen has published the results of his observations on this plant in a beautiful folio volume, finely illustrated by W. Sharpe, from specimens grown at Salem.

In 1843, Mr. Allen commenced the erection of his graperies on Dean street, which soon were greatly extended, so as to embrace several hundred feet of glass, and in which were grown about three hundred varieties of grapes, including several valuable seedlings; also peaches, cherries, and other fruits.

Charles Hoffman, William F. Gardner, William Dean, Richard West, Richard S. Rogers, William D. Pickman, and others, erected houses for the cultivation of flowers or the grape.

The Natural History Society, soon after its organization in December, 1833, opened its rooms for exhibitions of fruits and flowers. The first was held at the rooms on Essex street opposite Central street, on Friday, July 11, 1834, and was very creditable to our florists, many beautiful and some rare plants and flowers having been shown. The contributors were Stephen Driver, Jr., J. S. Cabot, Charles Lawrence, John M. Ives, Thomas Spencer, Mrs. G. S. Johonnot, the Misses Ashton and John Bertram. These exhibitions were continued on every Friday during the season, and among the contributors, besides those previously mentioned, were the names of Francis Putnam, George D. Phippen, Benjamin Creamer, W. F. Gardner, John C. Lee, N. Silsbee, Jr., B. H. Ives, E. H. Derby, Mrs. J. D. Treadwell, Robert Manning, William Dean, W. P. Richardson, and others. The success attending these first efforts, induced a continuance the following and successive seasons, with greater or less frequency, as circumstances would permit, until that of 1866, when from unavoidable reasons they were omitted, and since that time none have been held. May they be resumed the coming season with increased interest, and the horticultural department again take its former high position among the doings of the Institute.

In every exhibition special attention had been directed to have properly arranged a collection of the native plants of the county, then in flower, particularly those that are rare and curious, and are only found in the most inaccessible localities, thus affording all an opportunity to observe that portion of our flora not usually noticed in the ordinary walks.

The exhibitions, humble and unpretending in their origin, gradually increased in interest and attracted much attention, and undoubtedly have been the means of developing a more general and extensive taste for horticultural pursuits in this community. At the earlier exhibitions the contributions were small, afterwards gradually became more extensive, and at the one in September, 1850, one hundred and ninety-one individuals contributed two thousand dishes or baskets of fruit, consisting of six hundred and sixty-nine varieties.

In reviewing the several lists of contributions, a gradual change is perceptible by the introduction of new and the disappearance of old familiar species and varieties. The dahlia, once so conspicuous and exciting so much interest among cultivators, who numbered the varieties by hundreds, no longer holds that sway in the floral world. The plums, among our fruits, are scarcely seen, some twenty-five years since so fine and luscious in flavor, so attractive in appearance and in great variety.

The opening of communication with China and Japan have introduced, mainly through Mr. Fortune, the botanist, many beautiful shrubs and other plants, which add largely to the attractions of our gardens and lawns. An interesting and very valuable paper could be written on this subject, giving an account of the garden and its flowers during the first years of the exhibitions, and contrasting the same with those of the present day.

Having briefly noticed a few incidents in the history of horticulture in Salem, a theme so prolific in interesting materials, I now introduce to you our associate member, Mr. CHARLES H. HIGBEE, who will give some account of the experiments of Mr. Edward S. Rogers of this city, in the hybridization of the grape, which have resulted in the introduction of several choice and fine new varieties. It is a cause of gratulation that we have among us those who are now actively engaged in advançing this science, which in the past has enrolled so many names distinguished for their zeal, learning and general culture.

The remainder of the evening was occupied in the reading of an interesting paper by Mr. CHARLES H. HIGBEE, on the "Hybridization of Grapes," referring especially to the method adopted by Mr. Edward S. Rogers of Salem. (See an abstract of this paper on page 17.)

A discussion followed the reading of this paper, which was participated in by several members.

QUARTERLY MEETING, WEDNESDAY, FEBRUARY, 9, 1870.

The PRESIDENT in the chair. Records of preceding meeting read.

Nathaniel Ropes of Cincinnati, and Frank A. Fielden of Salem, were elected members.

The Secretary mentioned that Mr. Rantoul had given a favorable answer to the request of the Institute to read the memoir of the late Charles Davis, provided that he could have sufficient time to prepare the same.

REGULAR MEETING, MONDAY, FEBRUARY 21, 1870.

The President introduced Mr. **Edward E. Chever** of Chicago, Ill., a native of Salem, who gave an interesting account of the Indians of California, an abstract of which is here annexed.

The Indians of California.[*]

The name "Digger," which Fremont gave to the Indians that he found on the eastern slope of the Sierra Nevada, has been applied by the readers of Fremont's work to all the Indians in California.[†]

The name was really applicable to those whom he first met with, but not to the Indians living on the other side of the mountains, who spoke a different language and were more provident than those living on the great plains east of the Rocky Mountains.

The Indians of California, in 1849, were the more interesting to the ethnologist from the manner in which that country had been settled. The Jesuits, it is true, had been in Lower California for many years, and had established mission schools there, and a few Europeans had a short time before made scattered settlements in the Sacramento Valley, but the whole country was so remote from our frontiers, and inclosed by the intervening barriers of the Rocky Mountains and the snows of the Sierra Nevada Range, that it had been but little changed from its first discovery by the whites. Many Indian tribes were living in a perfect state of nature as the elk, deer or antelope that furnished them food. The children had their ears bored when quite young and small sticks inserted; these were exchanged from time to time for larger sticks, until a bone ornament, made from one of the larger bones of a pelican's wings carved in rude style, and decorated at the end with crimson feathers, could be worn permanently. This bone was about five or six inches long and larger in size than my little finger. The back hair of the men was fastened up in a net, and this was made fast by a pin of hard wood pushed through both hair and net, the large end of the pin being ornamented with crimson feathers, obtained from the head of a species of woodpecker, and sometimes also with the tail feathers of an eagle. The women used no nets for their hair, nor wore feathers as ornaments, excepting in the end of the bones used by both sexes for the ears, which I have already described.

An Indian could no more remember when he learned to swim than when he first stood on his feet. When the children were disposed to be good natured the girls petted them as kindly as our children tend dolls, but if they were cross, in spite of their caresses, they threw cold water in their faces until their tempers cooled. The girls fully equalled the boys in swimming or diving, and also used the paddle with skill sometimes even beating the boys in their canoe or foot races. Their winter quarters are dry and warm, but are rarely free from smoke, which the Indians do not seem to regard as an inconvenience. The outside is covered with earth and at least a half of the hut is below the surface of the ground. The inside shows strong posts supporting an arched roof made of poles bound with grapevines, and these covered with reeds and coarse grass secured by cords. A small hole in the roof serves as a chimney, and a low door, usually on the south side, is kept open excepting in stormy weather. A raised platform of poles and reeds holds the skins and blankets used for bedding. The hunting and fishing were done wholly by men, and some of the fishing was done at night when the women were sleeping at home. Much of the drudgery came to the women and seemingly with their consent. They said that a hunter needed a keen eye, a firm hand and a fleet foot; if he became stiff from hard work or lost his skill, his wife must suffer with him in his misfortunes, and it was best for each to do what each could do best.

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[*] It is but justice to our author to state that his familiarity with the language of the tribes during five years of friendly personal intercourse has given him a rare opportunity of forming a correct judgment of what these Indians really were before they were demoralized by contact with the whites. The author's remarks will be found published in full in the *American Naturalist* for May, 1870, with several illustrations. — Eds.

[†] The Indian tribes of the section I am describing, called themselves respectively, Sesum, Hocktem, Yubum, Hololipi, Willem, Tankum, and inhabited the valley of northern California, between the Sierra Nevada and the Coast Range.

An Indian to be judged fairly must be regarded as an Indian. Custom with them, as with civilized people, is law, and many of their customs have probably been transmitted with but little change from remote ages. Their religion is probably little changed from that of an earlier age. A Good Spirit is invoked to provide food and give prosperity, and evil spirits are to be propitiated. The oldest chief prays at certain seasons, morning and evening, outside of the council lodge, and sings in a monotone a few sentences only. This is not in words taken from their language, but is supposed to be intelligible to the Great Spirit. When special prayers are made for success in fishing or hunting the request is made in plain Indian. Although he prays constantly for success, he uses wonderful craft and skill to ensure it.

To illustrate the ease with which an Indian can provide food for himself, I saw one come to the bank of Feather River one afternoon and start a fire. Turning over the sod and searching under the logs and stones he found some grubs. Pulling up some light dry reeds of the last year's growth he plucked a few hairs from his own head and tied the grubs to the bottom of the reeds, surrounding the bait with a circle of loops. These reeds were now stuck lightly in the mud and shallow water near the edge of the river, and he squatted and watched the tops of his reeds. Not a sound broke the quiet of the place now; the Indian was as motionless as the trees that shaded him. Presently one of the reeds trembled at the top and the Indian quietly placed his thumb and finger on the reed and with a light toss a fish was thrown on the grass. The reed was then put back, another reed shook and two fish were thrown out; then still another and the fellow was soon cooking his dinner.

The Indians hunt for one kind of game only at a time, and each kind at a time that they can be taken most advantageously. When I saw every kind of game represented together at the Indian encampment in Bierstadt's painting of the Yosemite, I knew the camp had been introduced for effect, from the evident ignorance or disregard for the habits of the Indians.

It would consume too much space to describe all their implements, and many of them do not differ materially from those that were used by Indians in this section; among them were awls of bone, thread of deer sinews, and cord which they used for their nets, bird traps, and blankets; this cord was spun from the inner fibre of a species of milk-weed. Their cooking utensils were made from the roots of a coarse grass. These roots grew near the surface of the ground, and in sandy soil can be pulled up in long pieces. The pulpy outside skin is removed and the inside is a woody fibre, extremely tough when green, and durable when made into articles for daily use. The Indian women split these roots into thin strips and keep them in water when they are making baskets and take out one at a time, as needed. The water basket is first started from a centre at the bottom, and is added to stitch by stitch, without a skeleton frame to indicate the intended size. A loose strip of grass root is added constantly as a new layer to the last rim, and this is sewed on with another strip of the same fibre to the finished work beneath, a bone awl being used to bore holes through the basket portion. The water baskets were durable and would hold hot water.* Water was made to boil in them by dropping in stones heated previously. The women skilfully used two sticks in handling hot stones or coals as we would tongs.

In bread making the women pounded the acorns between two stones, a hollowed one serving for a mortar, until it was reduced to a powder as fine as our corn meal. They removed some of the bitterness of the meal by scraping hollows in the sand and leaching it, by causing water to percolate slowly through it. To prepare it for cooking the dough was wrapped in green leaves and these balls were covered with hot stones. It comes out dark colored and not appetizing, but it is nutritious and was eaten with gratitude by Fremont's men in 1844. Fish and meat were sometimes cooked in this way. A salmon rolled in grape leaves and surrounded with hot stones, the whole covered with dry earth or ashes over night and taken out hot for breakfast, does not need a hunter's appetite for its appreciation.

Marriage among the California Indians was similar to that of other tribes in other parts of the country. Presents of sufficient value were given by the men to the girl's parents, and the bride might be given away without her knowledge or consent. They were naturally cheerful and attached to each other, and although polygamy was permitted, I knew only one chief who had two wives. These seemed to agree, although Waketo said of his family that it had "too much tongue."

In earlier days dancing among them was confined to ceremonies of different kinds. In some of these the women joined, forming themselves into a circle; but as only one step was used in a solemn way, accompanied by a half turning of the body, a stranger might be in doubt whether it was rejoicing or mourning. Within this circle the men danced with great activity, leaping across a fire burning in the centre, and yelling and singing whilst the women continued their solemn dancing, singing a low monotonous chant.

The Indians were inveterate gamblers and parties from one tribe would visit another for several days at a time and play day and night. The game was a sort of an "odd and even," as played by white children, the parties guessing as to the number and position of the sticks used in the game. The playing was accompanied by singing and beads were principally used for stakes.

In the treatment of diseases the Indians succeeded in a certain class of them, but failed altogether in others. The pain from a sprain or rheumatism would be drawn to the surface by burning the skin with fire. I can testify to a cure from this remedy. For headaches they pressed their hands on the head of the sufferer and sometimes cured it by gentle pressure. For other diseases they tried steam baths, especially for colds. When any internal disorder defied their treatment they immediately begged medicine from the whites.

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* A shallow basket of their work, which has been in the Museum for several years, now holds cold water as perfectly as when it was made.

In burying the dead a circular hole was dug and the body placed in it, in a sitting posture, with the head resting on the knees. If a man his nets were rolled about him and his weapons by his side. If a woman, her blanket enclosed her body, and a conical shaped basket, such as they carry burdens in, was put into the grave also, with the peak upwards.

The language of the California Indians is composed of gutteral sounds, difficult to separate into words when spoken rapidly and hard to pronounce or remember. The counting is done, as with all primitive people I have met, by decimals. Children in reckoning call off the fingers and toes of both hands and feet as twenty, when wishing to express a large number. In counting ten the following words are used: Weekum, Paynay, Sarpun, Tchuyum, Marctem, Suckanay, Penimbom, Penceum, Peleum, Marchocom. If eleven is to be expressed it is Marchocum, Weekum or Ten one; Marchocum, Paynay, ten two, and so on to twenty which is Midequekum. The general term for man is Miadim, and for woman Killem, and for a child Collem. A boy is Miadim collem and a girl Killem collem. Although this seems to indicate a poverty of distinctive terms, yet when it is found that every animal, bird, insect and plant has its own name, it will be seen that there is no want of materials to supply a stranger with words for book making, if his tastes lead him in that direction.

After many years passed with these Indians, and having every opportunity to study their customs and character, I entertain pleasant recollections of their friendship which was never broken, and feel sadly when I realize that the improvements of the white men have been at the sacrifice of Indian homes and almost of the race itself.

It has been customary to attribute certain general qualities to whole tribes of Indians, and this has been done to those of whom I have written. I can only say, that no two Indians of my acquaintance were alike, and their mode of life would naturally develop individuality of character.

The charges of lying and stealing, as urged against them, have some foundation in fact, although the Indian might make some such defence as our soldiers made to the accusation of theft of honey and chickens while marching through the South during our war. They did not steal, they *took* what they wanted and expected to live on the enemy. No Indian can steal from his tribe, however, without losing his character, and their desire to have position in the tribe makes both men and women as careful of their reputations as those of civilized life.

Indian cunning even has not proved equal to the duplicity of the white man. You may have heard of the Indian who offered his beaver skins for sale to a trader in olden times in one of our Puritan villages, when the trader was on his way to church. The trader would not purchase then, but in a whisper stated a price. When the church was dismissed the Indian followed the trader home and demanded payment for his skins, but was forced to accept a less price than was first named. The Indian took the money but told an acquaintance that he had discovered the use of the big meeting at the church,—"it was to lower the price of beaver skins."

As a white man I take the side of the pioneer in defence of his family, but I wish the Indians could have been spared much of the degradation brought upon them by bad white men that must eventually end in complete subjection, or extermination.

On motion of Mr. Hyatt a vote of thanks was passed for the very interesting paper, and referred to the publication committee.

Mr. Robert Peele presented a musket, an interesting relic, with the following statement:—"Muskets of this pattern were formerly used by the non-commissioned officers of the English army, in addition to side arms; the breach is made more crooked than the common musket or the King's-arm, and is formed to fit the back of the soldier, where it was carried by a strap. This musket was brought to this country by an officer of the English army during the French war of 1755-6. The militia connected with the regular troops were drafted by the Governor's orders, from the several towns. Among those from Charlestown was a Mr. Graves, who, during the campaign, formed the acquaintance of one of the non-commissioned officers of regular troops, and from him obtained this piece, which he brought to Charlestown on his return and soon after sold it to his brother-in-law, Nathaniel Chamberlain, then living in Charlestown. Mr. Chamberlain, was a bricklayer by trade, came to Salem in 1773, and died about 1837, over ninety years of age. On his first removal to Salem he lived in the house of my grandfather, Robert Peele, and during that year sold to him this musket, which has been in the family to the present time, ninety-seven years. It had no bayonet when first owned by my grandfather; to meet the requirements of the militia law one was fitted. During the Revolutionary war my grandfather carried it to Lexington under Col. Timothy Pickering; to Rhode Island under Captain Flagg, and on all occasions required by law. My father, (Robert Peele, Jr.) in discharging the duties of a citizen soldier under the laws of the State; and by myself during the war of 1812 and 1813, in the discharge of guard duty on Salem Neck, and other occasions when required. It is in good condition although somewhat antiquated, having a flint lock. At your request, Mr. President, I have named all the facts known to me in the history of the above named musket, and would mention that they were often cited by my father, and that Mr. Chamberlain, who first brought it to Salem, had several times, in my presence, made the same statement."

Mr. Caleb Cooke stated that Mr. Luther Clapp of Salem, had shot on the 12th of February (1870), a female of the Lynx rufus (Bay Lynx) in the woods of Essex. Length of head and body twenty-nine inches; weight seventeen pounds.